



Discovery of Neoprene by DuPont - April 17, 1930

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General Note

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Neoprene was invented 83 years ago, on April 17, 1930 by DuPont. He is the only producer of Neoprene polychloroprene in North America. Neoprene is a versatile synthetic rubber still used for many chemical and weather-resistant applications today. DuPont had originally purchased the fundamental patent by Fr Julius Arthur Nieuwland, a Professor of chemistry at the University of Notre Dame. After obtaining the patent rights, Dr. Wallace Carothers of DuPont was assigned the task of further development of Fr. Nieuwland's discovery, by working in collaboration with Fr. Nieuwland himself. During the course of development, Arnold Collins (assistant of Wallace Carothers) was directed by Dr. Wallace Carothers of DuPont to explore the reaction between monovinyl acetylene (MVA) and hydrogen chloride gas. His suggestion indeed led to the discovery of neoprene, and further advances in Polymer Science – the reason Carothers is often considered as the Father of Polymer Science.

DuPont improved both the manufacturing process and the end product throughout the 1930s. The original manufacturing process left the product with a foul odor, so a new process was developed which eliminated the odor-causing byproducts and halved production costs. The company began selling the material to manufacturers of finished end-products. DuPont marketed its discovery in late 1931 under the trade name Duprene. He discontinued the Duprene trade name in 1937 in favor of the generic term "neoprene" to signify that the material was an ingredient, not a finished consumer product. It was used in consumer goods like gloves and shoe soles, but World War II removed neoprene from the commercial market. After World War II, Dupont purchased a government owned neoprene plant to keep up with the increasing demand for neoprene.

The introduction of neoprene was a major milestone in mankind's development of new materials.

Neoprene not only exhibited higher tensile strength than rubber, but also much better resistance to abrasion, oxygen, heat, oils, and chemicals. Its main applications, in the first instant, included jacketing for electric wires and cables, work-shoe soles, gasoline hoses, and conveyor and power transmission belting – basically as a better alternative to natural rubber. It provided a much stronger and differentiating advantageous position to USA. A scientifically and technologically significant side effect of the introduction of neoprene was the stimulus that the breakthrough gave to polymer research. Chemists had long debated whether polymers were mysterious aggregates of smaller units or were discrete macro-molecules. Wallace Carothers ended that debate by demonstrating scientifically in a series of now-classic papers that polymers were normal macromolecules, and not mysterious clusters or aggregates. In 1930's, he created a firm foundation for Polymer Science & Technology, and made it most attractive and desirable science to the new generation of scientists. Neoprene indeed changed the face of the World, and most certainly brought about major evolutionary changes in Science & Technology, gradually leading to the modern world of today.

Du Pont died at the age of 72 on December 9, 2010, from chronic obstructive pulmonary disease and emphysema. He was buried in his red Foxcatcher wrestling singlet, in accordance with his will.